

REMARKS

This patent application presently includes claims 1-27, claims 28-62 having been canceled. All subsisting claims stand rejected. The claims are amended to define the applicant's invention more precisely, and all rejections are respectfully traversed.

The claims will be discussed below in the same order as in the office action.

Claims 22-27 were rejected as obvious over Adamany et al. US Patent No. 6,615,141 rejection is respectfully traversed. Adamany does not teach or suggests the present invention.

Claim 22 was amended to recite that the querying step uses the signaling protocol of the second network in the forwarding step uses the signaling protocol of the first network. This introduces a consistent description of "protocol." The claim contained no antecedent basis for "network protocol." It is now clear that the first and second networks use disparate signaling protocols, with the querying step performed using the signaling protocol of the second network, and that the forwarding step performed using the signaling protocol of the first network.

Moreover, Adamany does not teach or suggests such a feature. The examiner cites various passages in Adamany that supposedly disclose this feature. However, there is no disclosure in Adamany that the first and second networks utilize different signaling protocols. For example, column 7, lines 10-13 (cited by the Examiner) make absolutely no mention of signaling protocols but merely state that the visited system uses disparate processes from the home system. It is a long stretch to conclude that this has anything to do with signaling protocols. The truth is that the passages cited by the Examiner do not even provide a suggestion that there is a difference in signaling protocols between the visited and home systems.

The Examiner makes much of the fact that the international gateway supports ANSI and ITU, concluding this suggests that the first and second networks use different signaling protocols. Such a conclusion is not justified. This disclosure merely indicates that the international gateway is capable of interfacing with an ANSI or ITU network, not that it necessarily will interface between two such networks.

Claim 22 also provides that the method is performed by a computer that does not perform any functions of the computer on which the home registration is located. Referring to the paragraph

beginning at the top of column 5, it is explained that the international gateway provides the information from the home system to a second visited system "without a second visited system having to check with the home system of the wireless unit" (column 5, lines 19-21). Clearly, the international gateway (a computer) which allegedly performs the claimed invention does perform functions of the computer on which the home registration is located.

In view of the foregoing, it is clear that Adamany does not teach or suggest the invention of claim 22. Claim 22 is therefore allowable over Adamany. Claims 23-27 depend from claim 22 and are allowable based upon their dependents from the allowable claim.

In addition, claims 23-27 are allowable on their own merits, in that they define additional features not taught or suggested by Adamany. For example, claims 23-25 relate to format conversion. Although the Examiner asserts and Adamany discloses such a conversion and cites certain passages in support of this, none of them even suggests that format conversion be performed.

Claims 1-21 were rejected at as obvious over Bertacchi US Patent No. 6,625,461 and Gallagher et al. US Patent No. 5,933,784 in view of Adamany. This tradition is respectfully traversed. None of these references, nor any combination thereof renders the present claims obvious.

Bertacchi merely exemplifies the shortcomings of existing networks which are sought to be eliminated in accordance with the present invention. Referring to Figure 1 of Bertacchi, a mobile station 10 associated with a mobile switching center 22 and the home location register (HLR) 24 is roaming in an area served by a visited mobile switching center (VMSC) 20. A message destined for station 10 is sent by a terminal 12 to its mobile switching center (MSC) 18. In accordance with conventional communication protocols, MSC 18 would forward the voice call to MSC 22. Upon receiving the message, MSC 22 would contact HLR 24, requesting the current location of station 10. HLR 24 then provides a code to MSC 22 which identifies VMSC 20, and MSC 22 then communicates with VMSC 20. Thereafter, MSC 22 can address all communication for station 10 to VMSC 20. This is the normal operation when all blocks use the same signaling system. However, suppose that VMSC 20 in a foreign signaling system and message center 22, both domestic. Message center 22 will then not be able to deliver a message to station 10, because it cannot route the physical address provided by the HLR 24. Even if routing were possible, the message would not be recognizable by VMSC 20 without conversion.

The solution taught by Bertacchi (see col. 5, lines 38-65) is that HLR 24 be constructed to convert the address code received from VMSC 20 at the time of registration into an address code that is compatible with signaling system used by MC 22. As an alternative, Bertacchi suggests that VMSC 20 could send multiple address codes to HLR 24 at the time of registration. However, the burden is placed upon HLR 24 and/or VMSC20 to provide the necessary processing to resolve the issue.

In accordance with the present invention, the burden of interface translation is largely born at the interface between the two networks, so that roaming services can be provided to mobile stations having different protocols, with only readily available modifications of signaling nodes in either half of the network being required. In other words, the process performed by apparatus at the interface location provides transparent communications for roaming telephone devices, such that, at every involved node, every portion of the network perceives that the call is traversing a network that uses the communication protocol native to it.

Given the large number of disparate networks worldwide, it is not technically desirable, and possible is even not feasible, to simply command every network operator to completely redesign their systems to implement the protocols of every other system at which a subscriber might be present. It is thus this very problem created by the prior art such as Bertacchi that the present invention seeks to solve. In short, Bertacchi requires ever increasing intelligence to be built into HLR's and other local components of the system. By making use of the present invention, all networks can use simple, basic components adapted to only the native protocol.

Gallagher, while appearing more centralized also discloses a system wherein the entire HLR, with call by call status and user by user information, must be maintained. (Gallagher, HLR 206 and VLR 208, col. 4, lines 2-24, col. 6, lines 36-40, Figure 7). In these prior art systems, the converter acts as a proxy. Specifically, if the home network and the network on which the user is roaming used the same protocol, the roaming network would just contact the HLR on the home network without a converter. Because the networks use different protocols, systems like Gallagher build a virtual home location register. The virtual home location register operates on all the details of the information from each user. It has the full complexity of a home location register, analyzes the information, and then regenerates another message with commands to the home location register. It needs to store states and process messages at the same level of detail as the real HLR.

As pointed out above, Adamany also contemplates incorporating at least some of the HLR features in the international gateway.

In the present invention, the translation is transparent. As seen, for example, in Figure 11 of the present specification, the HLR and VLR of the two disparate networks remain fully functional, and the translation function is isolated. As indicated in Figure 6, all that the converter need do in most cases is address translation so that the message to authenticate a roaming user is sent to the HLR of the home network. In this manner, the translation does not require that all the HLRs and VLRs in the different networks be reprogrammed and redesigned.

The examiner admits that Bertacchi does not disclose that the method be performed at a single interface between two networks, but he asserts that Gallagher discloses this feature. He admits that Adamany and Bertacchi do not disclose facilitating communications between a home register database and a computer operable on the second network, but he finds this in Adamany. What has become evident, however, is that the examiner has no motivation for combining the references. The only suggestion for such a combination is the disclosure of the present application, which the examiner uses as a blueprint, picking and choosing diverse references to formulate a rejection.

The truth is that even Adamany contemplates duplicating some of the HLR functions in the international gateway. Furthermore, the interface approach of Adamany is not consistent with the common wisdom, exemplified by Bertacchi, of placing the computing burden on the HLR. If anything Bertacchi teaches away from utilizing the approach of Adamany. This would not encourage, but *discourage* those skilled in the art from making the suggested combination.

For all these reasons, the obviousness rejections over the combination of Bertacchi, Gallagher and Adamany must fail. Claims 1-21 should be allowed.

In conjunction with this amendment the undersigned has petitioned for an extension of time and has paid the requisite fee. It is believed that no other fees are due with the present amendment. However, should it be determined otherwise, the commissioner is authorized to charge any deficiency in fees due with the present amendment to Deposit Account No. 50-4711.

Respectfully submitted,

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